

REMARKS

Claims 1-25 are pending in this application. Attached hereto is a complete listing of all claims in the application, with their current status listed parenthetically. By this Response, no claims are amended, cancelled or withdrawn.

Rejection Under 35 U.S.C. § 103

In paragraph 4 of the Office Action, claims 1-25 stand rejected as unpatentable under 35 U.S.C. § 103(a) over U.S. Patent 6,360,075 ("Fischer") in view of U.S. Patent 6,515,622 ("Izadpanah"). Applicant respectfully traverses this rejection.

A. The Law of Obviousness

In order to establish a *prima facie* case of obviousness, three basic criteria must be met:

"First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined), must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure." M.P.E.P. § 2142.

Suggestion or Motivation to combine references

As explained above, the Office Action makes a Section 103 rejection by combining two, separate references. Because a modification to the prior art is required to support this 35 U.S.C. section 103 rejection, an appropriate motivation to modify must be set forth in order to establish a *prima facie* case of obviousness. *See, In re Fritch*, 972 F.2d 1266 (Fed. Cir. 1992).

The Applicant respectfully traverses the Examiner's assertion that combining the teachings in Izadpanah with Fischer would have been obvious to one of ordinary skill in the art. Fischer teaches techniques for carrier based communications using a 6 MHz bandwidth continuous carrier wave signal parsed into 100 kHz channels (col. 5, lines 10-13).

However, Izadpanah teaches ultra-wideband communication technology that transmits discrete pulses of electromagnetic energy, with each pulse having a 200 picosecond duration resulting in a 5 GHz wide baseband signal (col. 7, lines 35-39). The advantages taught by Izadpanah are explicitly realized in systems "where the instantaneous fractional bandwidth of the system exceeds 25%" (col. 1, lines 13-14).

Obviously, Fischer's continuous carrier wave signals do not even approach 25% fractional bandwidth, nor would Fischer's system be capable of transmitting or receiving discrete pulses of electromagnetic energy having 200 picosecond durations, as taught in Izadpanah.

Put simply, the two types of communications systems, as taught in Fischer and Izadpanah, operate using fundamentally different principals of communication technology and thus there is no suggestion or motivation to combine these references.

Teach or Suggest All Claim Elements

Even if Fischer and Izadpanah were combined, albeit improperly, they would still not teach all of the elements as recited in Applicant's independent claim 1. In paragraph 4, the Examiner asserts that Fischer teaches all of the claimed elements "except transmitting a plurality of electromagnetic pulses." Applicant respectfully points out that in independent claim 1, reproduced below, a transmitter is coupled to the demodulator:

1. A communication system comprising:
a receiver structured to receive a substantially continuous sine wave carrier signal, the signal modulated to contain communication data;

a demodulator communicating with the receiver, the demodulator structured to demodulate the communication data from the substantially continuous sine wave carrier signal; and
a transmitter coupled to the demodulator, the transmitter structured to transmit a plurality of electromagnetic pulses, with the pulses configured to include the communication data. (emphasis added)

Applicant respectfully directs the Examiner to Fischer's Fig. 2, where the demodulators 132a – 132f are connected to QAM64 modulators 134a – 134f. This arrangement is not “a transmitter 134 coupled to the demodulator” as recited in the above claim. Applicant additionally notes that the term “demodulator” is not used or suggested in the Izadpanah reference. Thus any combination of these two references, albeit however improper, would still fail to teach all of the elements of independent claim 1.

Reasonable Expectation of Success

Finally, Applicant submits that a modification of the Fischer reference by the techniques taught in Izadpanah would change Fischer's principal of operation, resulting in an inoperable combination.

M.P.E.P. § 2143.01 states: “if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teaching of the references are not sufficient to render the claims *prima facie* obvious.”

There is no suggestion or motivation to combine Izadpanah with Fischer as it requires a change to the principal of operation of Fischer. Izadpanah teaches “a method and apparatus for beam forming ultra wideband phased array antenna beams with no beam squint” (col. 2, lines 25-27). However, Fischer, as explained in the summary of invention section, teaches:

“[A] transmission system that communicates data to a number of subscribers. The transmission system includes a transceiver that has a number of highly directional antennas. A number of digital repeaters are disposed in a geographic region serviced by the transceiver. The repeaters include a sectorized antenna that communicates with subscribers in a number of sectors of the geographic region of the repeater. The repeater

also includes an upstream demodulator/modulator circuit. The upstream demodulator/modulator circuit demodulates data from signals from subscribers that were modulated with a first modulation technique, and generates a re-modulated signal with the data using a second modulation technique. The second modulation technique is different from the first modulation technique such that the signals from the subscribers from the number of sectors are combined in the re-modulated signal so as to increase the capacity of the transmission system. The digital repeaters also include a highly directional antenna, that is coupled to the demodulator/modulator circuit and that communicates the re-modulated signal to the transceiver" (col. 2, lines 10-29).

Applying the techniques for beam forming taught by Izadpanah, illustrated in FIG. 1 and discussed in column 1, lines 25-60 would change the entire principal of operation of Fischer. Moreover, beam forming as taught by Izadpanah would render the "highly directional antennas" of Fisher completely inoperable. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection.

In paragraph 4 of the Office Action, the Examiner also rejects claims 2-25 under 35 U.S.C. § 103(a) as being unpatentable over Fischer. Applicant respectfully traverses these rejections. "If an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious." M.P.E.P. § 2143.03. Because claims 2-25 depend from and further limit and define the invention of claim 1, claims 2-25 are also patentably distinct from the art being considered and the arguments above with respect to claim 1 apply equally here.

Also in paragraph 4 of the Office Action, with regard to claims 11 and 14, the Examiner takes Official Notice that "the recited various wired transmission mediums are known in the art". With regard to the Examiners application of the Notice to claim 14, Applicant respectfully traverses the Examiners assertion that it would have been obvious to one skilled in the art to retransmit "the plurality of electromagnetic pulses" across the wired media recited in claim 14.

Therefore, Applicant respectfully requests a reference in support of his position. M.P.E.P. § 2144.03

Terminal Disclaimer

In paragraphs 5 and 6 of the Office Action, the Examiner provisionally rejects claims 1-25 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-47 of co-pending U.S. patent application serial Nr. 10/723,562.

In response, Applicant submits a terminal disclaimer (PTO/SB/26), and requisite 37 C.F.R. 1.20(d) fee.

Conclusion

Applicant believes that this Response has addressed all items in the Office Action and now places the application in condition for allowance. Accordingly, favorable reconsideration and allowance of claims 1-25 at an early date is solicited. No fee is believed due with this response. However, the Commissioner is authorized to charge any fee required to our Deposit Account No. 50-3143, in the name of Pulse-Link, Inc. Should any issues remain unresolved, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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Date



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